

# IS WORD PROCESSING SENSITIVE TO MORPHOLOGICAL CYCLES?

Alina Villalva<sup>1</sup>, Paula Luegi<sup>1</sup>

<sup>1</sup>Universidade de Lisboa

www.clul.ul.pt/investigador/139-alina-villalva  
alinavillalva@fl.ul.pt

www.labpsicolog.com/investigadores/paula\_luegi.html  
paulaluegi@fl.ul.pt

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## 1. Introduction

In Portuguese, complex words may be built upon roots, themes or words. This latter option is chosen, for instance, by z-evaluative suffixes (eg. *anelzinho* 'small ring'). From a morphological point of view it is self-evident that these words comprise two full cycles: (1<sup>st</sup>) the formation of the base word and (2<sup>nd</sup>) the formation of the complex word. Evidence comes from the fact that they present two stressed syllables (eg. *a[nel][zi]nho*) and that they exhibit the same inflectional allomorphs of the base in word final position (eg. *anel[zinho] / anel[zinhos]*).

Diminutives, though, may also be formed by simple evaluative suffixes, such as *-inho*, which are adjoined to roots (eg. *anelinho*, *anelinhos*). In this case, the morphological process is less complex, since only one cycle is needed to complete the diminutive formation.

Although most words allow both diminutive formation strategies, Portuguese native speakers seem to often prefer z-evaluative suffixation to its simpler counterpart.

### The point of departure:

A previous offline experiment (reported in Villalva 2010) allowed us to observe that:

- the instruction 'form a diminutive' is understood by 89% of the Portuguese native speakers subjects as 'form a complex word by using the evaluative suffix *-inho* or *-zinho*;
- zinho* is always preferred, but the thematic class of the base interferes with the choice: words bearing a phonetically recognizable thematic index are those that allow for *-inho* more often; athematic words never do;
- the length of the base is also relevant: bigger words strongly favor the adjunction of *-zinho*;

Our goal with the present study is to check if structural morphological differences have different cognitive costs and, more precisely, if words that comprise different morphological cycles have different processing results.

The strong preference for the adjunction of *-zinho*, and, thus, for two cycle diminutive words was interpreted as the outcome of recoverability condition: although structurally heavier, they offer better recoverability cues and this must be why native speakers like it better.

## 2. Experiment

We developed a lexical decision task experiment where the base word (eg. *gaveta* 'drawer') is presented after either a diminutive form built upon the base root (eg. *gavetinha* 'little drawer') or by a z-diminutive form built upon the base word (eg. *gavetazinha* 'little drawer'). Words belonging to two different thematic classes (*-a* and  $\emptyset$ ) with different number of syllables are tested.

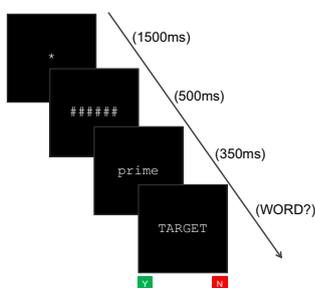
**Participants:** 24 adult native speakers of EP from the University of Lisbon

**Experimental items:** 48 pairs of words (24 *-a* Theme and 24  $\emptyset$  Theme) + 48 pairs of non-words (plus 192 fillers, half words, half non-words pairs)

	PRIME	TARGET
<i>-inh</i>	<i>carinha</i>	CARA
<i>-zinh</i>	<i>carazinha</i>	CARA
No-Relation (NR)	<i>maleta</i>	CARA

**Task:** Lexical decision task

**Procedure:**

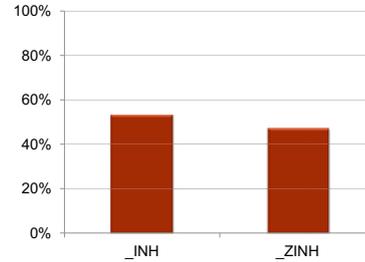


## References

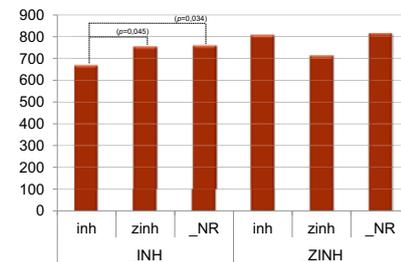
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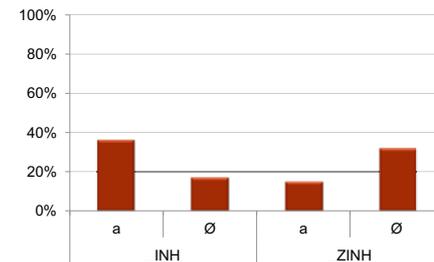
## 3. Results



Graphic 1. Distribution of words by mean reaction time on target depending on prime characteristics.



Graphic 2. Mean reaction time per condition on Group 1 (-INH) and on Group 2 (-ZINH).



Graphic 3. Words characteristics by group.

## 4. Discussion

- No results were found when contrasting the three conditions.
- Words were reorganized into two groups: Group 1 (\_INH) words that had less reaction time when preceded by a *-inh* suffixed prime; Group 2 (\_ZINH) words that had less reaction time when preceded by a *-zinh* suffixed prime.
  - Group 1: Reaction times were significantly lower on *-inh* condition ( $F(2,69)=2,949$ ;  $p<0,050$ ).
  - Group 2: No differences were found.
- Analyzing word characteristics of each group:
  - Group 1: *-a* Theme (36%) and  $\emptyset$  Theme (17%)
  - Group 2:  $\emptyset$  Theme (32%) and *-a* Theme (15%)

## 5. Preliminary conclusions

Results seem to indicate a co-relation between Theme and Suffix type preference: *-inh* for *-a* Theme and *-zinh* for  $\emptyset$  Theme (similar to Villalva (2010) off-line task).

Processing costs: although there is a distinction between the group of words preferentially formed with *-inh* and those formed with *-zinh*, only the first one primes the recognition of the base. Less complex word formation processes have a facilitation effect. More complex processes, even when preferred, do not prime word base recognition.

**Is the number of cycles involved on word formation with evaluatives reflected on the recognition of the base word?** Yes, since when the preference of formation is for the solution with less cycles, a facilitation effect is found.



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